1984 ALBERTA TRAFFIC COLLISION STATISTICS

Alberta
TRANSPORTATION
Transportation Safety Branch
Planning and Program Support

955
10029

ALBERTA

TRAFFIC COLLISION STATISTICS

1984

Alberta Transportation
Transportation Safety Branch
Planning and Program Support

INTRODUCTION

The purpose of this report is to provide an overview of the "who", "what", "when", "where", "why", and "how" of traffic collisions which occurred in Alberta during 1984. Although the report is general in nature, it will pay particular attention to casualty collisions, that is, those collisions which resulted in death or injury.

Legislation in Alberta requires that a traffic collision, which results in either death, injury or property damage to an apparent extent of $500.00 or more, be reported to an authorized peace officer. The officer completes a standardized collision report form which provides information on various aspects of the traffic collision. This report is based on the data collected in that comprehensive form.

After completion, the information on the collision report form is coded for input onto computer files. The Provincial Traffic Crash Information System, which has been operational since 1978, undergoes several manual and computerized inspections each year in order to insure maximum accuracy of the final data output.

While the patterns and trends detailed in this report represent an accurate description of Alberta's traffic collision scene, the actual numbers are subject to revision, as approximately 1% of the 1984 data was unprocessed at the time the report was prepared.

For further information contact:

Alberta Transportation
Transportation Safety Branch
Planning and Program Support
Twin Atria Building
4999 - 98th Avenue
Edmonton, Alberta
T6B 2X3
(403) 427-7912

TABLE OF CONTENTS

PAGE

I. 1984 TRAFFIC COLLISION SUMMARY

1. Alberta Traffic Collisions 1980-1984 1
2. Five Year Trends 1
3. Provincial Comparisons 2

II. WHEN THE COLLISIONS OCCURRED

1. Collision Occurrence by Month 11
2. Collision Occurrence by Day of Week 11
3. Collision Occurrence by Time 11
4. Collisions During 1984 Holidays 11

III. VICTIMS

1. Road User Class 17
2. Age of Casualties 17

IV. DRIVER COMPONENT

1. Age and Sex of Drivers Involved in Collisions 20
2. Driver Actions 20

V. VEHICLE COMPONENT

1. Types of Vehicles 24
2. Vehicular Factors 24
3. Point of Impact 24

VI. ENVIRONMENTAL COMPONENT

1. Location 28
2. Surface Condition 28
3. Road Condition 28

VII. SPECIAL TYPES OF VEHICLES

A. MOTORCYCLES

1. Casualty Collisions Involving Motorcycles 32
2. Age and Sex of Drivers 32
3. Driver Action 32
4. Driver Condition 32
5. Vehicular Factors 32
6. Month of Occurrence 32
7. Surface Condition 32

PAGE

B. TRACTOR TRAILERS

1. Casualty Collisions Involving Tractor Trailers..... 33
2. Driver Action 33
3. Driver Condition 33
4. Vehicular Factors 33
5. Month of Occurrence 33

C. TRAINS

1. Casualty Collisions Involving Trains 33
2. Month of Occurrence 33
3. Actions of Drivers Involved 33

VIII. PEDESTRIANS

1. Month of Occurrence 49
2. Day of Occurrence 49
3. Hour of Occurrence 49
4. Location 49
5. Actions of Drivers Involved 49
6. Age of Pedestrian Casualties..... 49

IX. TRAFFIC SAFETY ISSUES

A. ALCOHOL INVOLVEMENT

1. Condition of Driver..... 56
2. Age and Sex of Drivers Involved..... 56
3. Month of Occurrence 56
4. Day of Occurrence 56
5. Hour of Occurrence 56

B. RESTRAINT USE

1. Restraint Usage Rate By Age 56

LIST OF TABLES

PAGE

I. 1984 TRAFFIC COLLISION SUMMARY

Table 1.1 Alberta Traffic Collisions 1980-1984 3
Table 1.2 Traffic Collision Rates 1980-1984 4
Table 1.3 Provincial Comparisons of Casualty Rates per 100 Million Vehicle Kilometres Travelled 7

II. WHEN THE COLLISIONS OCCURRED

Table 2.1 Collision Occurrence by Month 12
Table 2.2 Collision Occurrence by Day of Week 13
Table 2.3 Collision Occurrence by Hour 14
Table 2.4 Collision Occurrence by Time Periods 15
Table 2.5 Collisions During 1984 Holidays 16

III. VICTIMS

Table 3.1 Injuries and Fatalities by Road User Class 18
Table 3.2 Age of Casualties Involved in Casualty Collisions 19

IV. DRIVER COMPONENT

Table 4.1 Age and Sex of Drivers Involved in Casualty Collisions: Per 1,000 Licensed Drivers 21
Table 4.2 Actions of Drivers Involved in Casualty Collisions 23

V. VEHICLE COMPONENT

Table 5.1 Types of Vehicles Involved in Casualty Collisions 25
Table 5.2 Vehicular Factors Involved in Casualty Collisions 26
Table 5.3 Point of Impact on Vehicles Involved in Casualty Collisions 27

VI. ENVIRONMENTAL COMPONENT

Table 6.1 Location of Collisions 29
Table 6.2 Casualty Collision Occurrence by Surface Condition .. 30
Table 6.3 Road Location of Casualty Collisions 31

VII. SPECIAL TYPES OF VEHICLES

A. MOTORCYCLES

Table 7.1 Casualty Collisions Involving Motorcycles 1980-1984 .. 34
Table 7.2 Age and Sex of Motorcycle Drivers Involved in Casualty Collisions 35
Table 7.3 Casualty Collisions Involving Motorcycles: Driver Action 36

VII. SPECIAL TYPES OF VEHICLES - CONTINUED **PAGE**

Table 7.4 Casualty Collisions Involving Motorcycles: Driver Condition 37
Table 7.5 Casualty Collisions Involving Motorcycles: Vehicular Factors 38
Table 7.6 Casualty Collisions Involving Motorcycles: Month of Occurrence 39
Table 7.7 Casualty Collisions Involving Motorcycles: Road Surface Condition .....

B. TRACTOR TRAILERS

Table 7.8 Casualty Collisons Involving Tractor Trailers 1980-1984 41
Table 7.9 Casualty Collisions Involving Tractor Trailers: Driver Action 42
Table 7.10 Casualty Collisions Involving Tractor Trailers: Driver Condition 43
Table 7.11 Casualty Collisions Involving Tractor Trailers: Vehicular Factors 44
Table 7.12 Casualty Collisions Involving Tractor Trailers: Month of Occurrence 45

C. TRAINS

Table 7.13 Casualty Collisions Involving Trains 1980-1984 46
Table 7.14 Casualty Collisions Involving Trains: Month of Occurrence 47
Table 7.15 Casualty Collisions Involving Trains: Driver Action 48

VIII. PEDESTRIANS

Table 8.1 Pedestrian Casualty Collisions: Month of Occurrence 50
Table 8.2 Pedestrian Casualty Collisions: Day of Occurrence 51
Table 8.3 Pedestrian Casualty Collisions: Time Period 52
Table 8.4 Pedestrian Casualty Collisions: Location 53
Table 8.5 Pedestrian Casualty Collisions: Driver Action 54
Table 8.6 Age of Pedestrian Casualties 55

IX. TRAFFIC SAFETY ISSUES

A. ALCOHOL INVOLVEMENT

Table 9.1 Condition of Drivers Involved in Casualty Collisions ... 57
Table 9.2 Age and Sex of Drinking Drivers Involved in Casualty Collisions 58

IX. TRAFFIC SAFETY ISSUES - CONTINUED

PAGE

Table 9.3 Alcohol - Involved Casualty Collisions: Month of Occurrence 59

Table 9.4 Alcohol - Involved Casualty Collisions: Day of Week..... 60

Table 9.5 Alcohol - Involved Casualty Collisions: Time of Occurrence..... 61

B. OCCUPANT RESTRAINT USE

Table 9.6 Restraint Usage Rate By Age of Occupants Injured in Traffic Collisions 62

1984 TRAFFIC COLLISION SUMMARY

INTRODUCTION

- During 1984 a total of 91,544 traffic collisions were reported. Approximately 86% (78,993) of these crashes involved property damage only, while approximately 13.5% (12,150) were non-fatal injury collisions. Fatal crashes accounted for less than 1% of the total reported collisions.

FIVE YEAR TRENDS

- In order to better understand the provincial collision history over the past 5 years, it is necessary to examine collision rates as well as the absolute numbers. These rates are based on estimates of Alberta's licensed drivers, population, registered vehicles, and vehicle kilometres travelled.

- Fatal collision rates and fatality rates have generally decreased over the past five years but have risen slightly over the past year. Specifically, over the past year, in terms of vehicle kilometres travelled, fatal collision rates increased 12.5%.

- Non-fatal injury collision rates and non-fatal injury rates, have decreased steadily over the past 5 years. Over the past year, in terms of vehicle kilometres travelled, non-fatal injury collision rates decreased 5.9%.

- Both the property damage and total collision rates have decreased steadily since 1981. Over the past year, in terms of vehicle kilometres travelled, property damage and total collisions have decreased 3.1% and 3.4%, respectively.

PROVINCIAL COMPARISONS

- Again, in order to get a clear picture of Alberta's traffic injuries in comparison to other provinces, rates rather than absolute numbers were utilized. In this instance, injury rates per vehicle kilometres travelled were examined.

- From 1980 to 1982, approximately half of the provinces recorded higher injury and fatality rates than Alberta, while the remaining half recorded lower casualty rates. However, since 1983, of those provinces for which information was available, most recorded higher fatality and injury rates than Alberta.

Table 1.1

ALBERTA TRAFFIC COLLISIONS
1980 - 1984

Severity of Collision	**1984**	**1983**	**1982***	**1981**	**1980**
Fatal Collisions	**401**	370	429	578	538
Non-Fatal Injury Collisions	**12150**	12966	14737	16397	16253
Property Damage Only Collisions	**78993**	81871	85525	104355	90171
TOTAL Reportable Collisions	**91544**	95207	100691	121330	106962
Number Killed	**470**	428	502	700	647
Number Injured	**19172**	19237	21925	24603	24535
TOTAL Number of Casualties	**19642**	19665	22427	25303	25182

OBSERVATIONS

Over the past year the overall number of collisions decreased 3.8%. Injury collisions decreased 6.3% while fatal crashes increased 8.4%. The number of fatalities has increased by 9.8% from 1983 to 1984, while the number of injuries decreased very slightly. In terms of the past five years, overall collisions and injury collisions rose steadily each year from 1980 to 1981 but decreased over the next three years. The number of people killed decreased steadily from 1981 to 1983, but increased over the past year.

* On January 1, 1982, the reporting limit for a collision was increased from $350.00 to $500.00.

Table 1.2

TRAFFIC COLLISION RATES

1980 - 1984

Severity of Collision	Per 10,000 Licensed Drivers *					Per 10,000 Population *				
	1984	**1983**	**1982**	**1981**	**1980**	**1984**	**1983**	**1982**	**1981**	**1980**
Fatal Collisions	**2.2**	2.0	2.4	3.4	3.4	**1.7**	1.6	1.8	2.5	2.4
Number Killed	**2.6**	2.4	2.8	4.1	4.1	**2.0**	1.8	2.1	3.1	2.9
Non-Fatal Injury Collisions	**66.8**	71.3	81.9	96.1	101.8	**51.7**	55.2	62.2	71.5	73.8
Number Injured	**105.4**	105.8	121.8	144.2	153.6	**81.6**	81.9	92.4	107.3	111.4
Property Damage Only Collisions **	**434.4**	450.3	475.1	611.7	564.5	**336.3**	348.4	360.5	455.0	409.5
TOTAL Reportable Collisions	**503.5**	523.6	559.4	711.2	699.7	**389.7**	405.1	424.5	529.0	485.7

Table 1.2 Continued

Severity of Collision	Per 10,000 Registered Vehicles *					Per 100 Million Vehicle Kilometres *				
	1984	**1983**	**1982**	**1981**	**1980**	**1984**	**1983**	**1982**	**1981**	**1980**
Fatal Collisions	**1.9**	1.8	2.1	2.8	2.8	**1.8**	1.6	1.9	2.5	2.4
Number Killed	**2.3**	2.1	2.4	3.5	3.4	**2.1**	1.9	2.2	3.0	2.9
Non-Fatal Injury Collisions	**58.5**	63.1	70.6	80.0	84.3	**54.4**	57.8	63.6	70.6	72.0
Number Injured	**92.3**	93.6	105.0	121.3	127.3	**85.8**	85.7	94.6	105.9	108.7
Property Damage Only Collisions **	**380.3**	398.2	409.5	514.5	467.9	**353.4**	364.7	368.9	449.2	399.3
TOTAL Reportable Collisions	**440.7**	463.1	482.2	597.3	555.0	**409.6**	424.1	434.4	522.3	473.7

TABLE 1.2 - Continued

OBSERVATIONS

Fatal collision rates and fatality rates in terms of licensed drivers, population, registered vehicles and vehicle kilometres travelled have generally decreased over the past five years but have risen slightly over the past year. Specifically, over the past year, in terms of vehicle kilometres travelled, fatal collision rates increased 12.5%. Non-fatal injury collision rates decreased steadily over the past 5 years. Over the past year, in terms of vehicle kilometres travelled, non-fatal injury collison rates decreased 5.9%. Both the property damage and total collision rates have decreased steadily since 1981. Over the past year, in terms of vehicle kilometres travelled, property damage and total collisions have decreased 3.1% and 3.4%, respectively.

* Sources:

Licensed Drivers - Operator Statistics, Motor Vehicles Division, Alberta Solicitor General.

Population - Based on postcensal estimate of the population by sex and age. Canada and Provinces, 1984, Statistics Canada.

Registered Vehicles - Motor Vehicles Division, Alberta Solicitor General.

Vehicle Km - Estimated on the basis of gross sales of gasoline, information supplied by Statistics Canada. Catalogue No. 53218 (Annual).

** On January 1, 1982, the reporting limit for a collision was increased from $350.00 to $500.00.

Table 1.3

PROVINCIAL COMPARISONS OF CASUALTY RATES PER 100 MILLION VEHICLE KILOMETRES *TRAVELLED 1980 - 1984

	ALBERTA		B.C.		SASKATCHEWAN		MANITOBA	
		Per 100 Million Vehicle Km		Per 100 Million Vehicle Km		Per 100 Million Vehicle Km		Per 100 Million Vehicle Km
	N	Rate	N	Rate	N	Rate	N	Rate
1984								
Number Killed	**470**	**2.1**	**525**	**2.8**	**221**	**	**127**	**1.7**
Number Injured	**19172**	**85.8**	**32407**	**172.5**	**7904**	**	**11664**	**159.6**
TOTAL Casualties	**19642**	**87.9**	**32932**	**175.3**	**8125**	**	**11791**	**161.3**
1983								
Number Killed	428	1.9	607	3.2	235	**	133	1.8
Number Injured	19237	85.7	31855	166.9	8262	**	10798	145.5
TOTAL Casualties	19665	87.6	32462	170.1	8497	**	10931	147.3
1982								
Number Killed	502	2.2	601	3.0	240	**	151	2.0
Number Injured	21925	94.6	33807	167.7	8516	**	10309	100.8
TOTAL Casualties	22427	96.8	34408	170.7	8756	**	10460	102.8
1981								
Number Killed	700	3.0	860	3.8	262	2.7	198	2.5
Number Injured	24603	105.9	44033	196.8	8660	88.7	10970	139.6
TOTAL Casualties	25303	108.9	44893	200.6	8922	91.4	11168	142.1
1980								
Number Killed	647	2.9	811	3.7	265	2.6	175	2.1
Number Injured	24535	108.7	41500	187.4	8884	87.0	10940	132.3
TOTAL Casualties	25182	111.6	42311	191.1	9149	89.6	11115	134.4

Table 1.3 Continued

	ALBERTA		N.S.		P.E.I.		NEWFOUNDLAND	
		Per 100 Million Vehicle Km		Per 100 Million Vehicle Km		Per 100 Million Vehicle Km		Per 100 Million Vehicle Km
	N	Rate	N	Rate	N	Rate	N	Rate
1984								
Number Killed	**470**	**2.1**	**149**	**2.8**	**31**	**3.6**	**57**	**2.1**
Number Injured	**19172**	**85.8**	**	**	**754**	**88.7**	**1358**	**49.2**
TOTAL Casualties	**19642**	**87.9**	**	**	**785**	**92.3**	**1415**	**51.3**
1983								
Number Killed	428	1.9	159	3.0	31	3.6	97	3.5
Number Injured	19237	85.7	**	**	861	101.3	2205	79.9
TOTAL Casualties	19665	87.6	**	**	892	104.9	2302	83.4
1982								
Number Killed	502	2.2	170	3.1	16	1.9	59	2.0
Number Injured	21925	94.6	4355	78.3	640	83.3	2350	81.6
TOTAL Casualties	22427	96.8	4525	81.4	656	85.2	2409	83.6
1981								
Number Killed	700	3.0	165	2.8	21	2.3	78	2.6
Number Injured	24603	105.9	4342	73.7	737	81.0	2750	90.2
TOTAL Casualties	25303	108.9	4507	76.5	758	83.3	2828	92.8
1980								
Number Killed	647	2.9	199	3.2	35	3.5	86	2.7
Number Injured	24535	108.7	4484	73.1	708	71.5	2496	77.5
TOTAL Casualties	25182	111.6	4683	76.3	743	75.0	2582	80.2

Table 1.3 Continued

	ALBERTA Per 100 Million Vehicle Km		ONTARIO Per 100 Million Vehicle Km		QUEBEC Per 100 Million Vehicle Km		N.B. Per 100 Million Vehicle Km	
	N	**Rate**	**N**	**Rate**	**N**	**Rate**	**N**	**Rate**
1984								
Number Killed	**470**	**2.1**	**1132**	**	**1224**	**3.6**	**157**	**3.3**
Number Injured	**19172**	**85.8**	**97230**	**	**55175**	**163.1**	**5581**	**116.0**
TOTAL Casualties	**19642**	**87.9**	**98362**	**	**56399**	**166.7**	**5738**	**119.3**
1983								
Number Killed	428	1.9	1204	**	1183	3.5	122	2.6
Number Injured	19237	85.7	91706	**	49375	144.8	5087	108.2
TOTAL Casualties	19665	87.6	92910	**	50558	148.3	5209	110.8
1982								
Number Killed	502	2.2	1138	1.9	1082	3.0	204	4.0
Number Injured	21925	94.6	92815	156.4	45412	128.0	5217	120.3
TOTAL Casualties	22427	96.8	93953	158.3	46494	131.0	5421	124.3
1981								
Number Killed	700	3.0	1445	2.2	1464	3.6	188	3.4
Number Injured	24603	105.9	100321	155.0	59155	145.2	5252	94.3
TOTAL Casualties	25303	108.9	101766	157.2	60619	148.8	5440	97.7
1980								
Number Killed	647	2.9	1508	2.3	1461	3.4	214	3.7
Number Injured	24535	108.7	101367	151.7	62631	144.0	5258	90.2
TOTAL Casualties	25182	111.6	102875	154.0	64092	147.4	5472	93.9

Table 1.3 Continued

OBSERVATIONS

From 1980 to 1982, approximately half of the provinces recorded higher injury and fatality rates than Alberta, while the remaining half recorded lower casualty rates. However, since 1983, of those provinces for which information was available, most recorded higher fatality and injury rates than Alberta. In fact, during 1984, only one province (Manitoba) recorded a lower fatality rate than Alberta.

Sources:

* Casualty Statistics - Information supplied by each province. Vehicle km were estimated on the basis of gross sales of gasoline, information supplied by Statistics Canada. Catalogue No. 53218 (Annual).

** Not available

WHEN THE COLLISIONS OCCURRED

MONTH

- The summer months experienced more casualty collisions than any other season. The highest number of property damage only collisions was recorded during the winter months.

DAY OF WEEK

- The daily distribution of collisions indicated that Friday and Saturday were the most collision - prone days of the week.

TIME

- The afternoon rush hour period accounted for the highest proportion of collisions. The least collision - prone time period was the early morning.

HOLIDAYS

- The holiday weekends in the summer and fall months recorded more individuals killed or injured in traffic collisions than any other holiday period. However, the Christmas season experienced the most collisions overall.

Table 2.1

COLLISION OCCURRENCE BY MONTH
1984

MONTH	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Only Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
January	26	6.5	824	6.8	7283	9.2	8133	8.9
February	21	5.2	687	5.7	5152	6.5	5860	6.4
March	15	3.7	816	6.7	6445	8.2	7276	7.9
April	27	6.7	823	6.8	4438	5.6	5288	5.8
May	33	8.2	1018	8.4	5192	6.6	6243	6.8
June	60	15.0	1176	9.7	5916	7.5	7152	7.8
July	35	8.7	1167	9.6	5500	7.0	6702	7.3
August	55	13.7	1183	9.7	5571	7.1	6809	7.4
September	40	10.0	1107	9.1	6492	8.2	7639	8.3
October	27	6.7	1150	9.5	8608	10.9	9785	10.7
November	35	8.7	1116	9.2	8749	11.1	9900	10.8
December	27	6.7	1080	8.9	9599	12.2	10706	11.7
Other	0	0.0	3	0.0	48	0.1	51	0.1
TOTAL	**401**	**100.0**	**12150**	**100.0**	**78993**	**100.0**	**91554**	**100.0**

OBSERVATIONS

The summer months (June - September) experienced more casualty collisions than any other season. The highest number of property damage only collisions was reported in the fall and winter months (October - January).

Table 2.2

COLLISION OCCURRENCE BY
DAY OF WEEK
1984

Day of Week	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Only Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
Monday	56	14.0	1470	12.1	10400	13.2	11926	13.0
Tuesday	42	10.5	1579	13.0	10612	13.4	12233	13.4
Wednesday	41	10.2	1691	13.9	11047	14.0	12779	14.0
Thursday	53	13.2	1759	14.5	12096	15.3	13908	15.2
Friday	67	16.7	2137	17.6	14207	18.0	16411	17.9
Saturday	92	22.9	2021	16.6	12304	15.6	14417	15.7
Sunday	50	12.5	1493	12.3	8327	10.5	9870	10.8
TOTAL	**401**	**100.0**	**12150**	**100.0**	**78993**	**100.0**	**91544**	**100.0**

OBSERVATIONS

The daily distribution of collisions indicated that Friday and Saturday were the most collision-prone days of the week. Weekdays (Monday to Thursday) were similar to each other in terms of collision totals, while Sunday was the least collision-prone day of the week.

Table 2.3

COLLISION OCCURRENCE BY HOUR
1984

Hour of Collision	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Only Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
12:00 A.M. - 12:59 Midnight	16	4.0	391	3.2	2830	3.6	3237	3.5
1:00 A.M. - 1:59 A.M.	18	4.5	404	3.3	1813	2.3	2235	2.4
2:00 A.M. - 2:59 A.M.	17	4.2	364	3.0	1509	1.9	1890	2.1
3:00 A.M. - 3:59 A.M.	17	4.2	215	1.8	853	1.1	1085	1.2
4:00 A.M. - 4:59 A.M.	13	3.2	174	1.4	617	0.8	804	0.9
5:00 A.M. - 5:59 A.M.	8	2.0	141	1.2	514	0.7	663	0.7
6:00 A.M. - 6:59 A.M.	8	2.0	190	1.6	908	1.1	1106	1.2
7:00 A.M. - 7:59 A.M.	18	4.5	378	3.1	2737	3.5	3133	3.4
8:00 A.M. - 8:59 A.M.	12	3.0	499	4.1	3287	4.2	3798	4.1
9:00 A.M. - 9:59 A.M.	14	3.5	397	3.3	3516	4.5	3927	4.3
10:00 A.M. - 10:59 A.M.	14	3.5	411	3.4	3698	4.7	4123	4.5
11:00 A.M. - 11:59 A.M.	13	3.2	547	4.5	4214	5.3	4774	5.2
12:00 P.M. - 12:59 Noon	12	3.0	672	5.5	4656	5.9	5340	5.8
1:00 P.M. - 1:59 P.M.	13	3.2	631	5.2	4822	6.1	5466	6.0
2:00 P.M. - 2:59 P.M.	16	4.0	724	6.0	5151	6.5	5891	6.4
3:00 P.M. - 3:59 P.M.	15	3.7	861	7.1	5597	7.1	6473	7.1
4:00 P.M. - 4:59 P.M.	31	7.7	918	7.5	5983	7.6	6932	7.6
5:00 P.M. - 5:59 P.M.	20	5.0	874	7.2	5384	6.8	6278	6.9
6:00 P.M. - 6:59 P.M.	31	7.7	692	5.7	4324	5.5	5047	5.5
7:00 P.M. - 7:59 P.M.	17	4.2	628	5.2	3783	4.8	4428	4.8
8:00 P.M. - 8:59 P.M.	22	5.5	555	4.6	3272	4.1	3849	4.2
9:00 P.M. - 9:59 P.M.	15	3.7	520	4.3	3116	3.9	3651	4.0
10:00 P.M. - 10:59 P.M.	24	6.0	423	3.5	2755	3.5	3202	3.5
11:00 P.M. - 11:59 P.M.	15	3.7	407	3.3	2436	3.1	2858	3.1
Unspecified	2	0.5	134	1.1	1218	1.5	1354	1.5
TOTAL	**401**	**100.0**	**12150**	**100.0**	**78993**	**100.0**	**91544**	**100.0**

OBSERVATIONS

The most collision-prone period of time during the day was late afternoon to early evening (3:00 P.M. to 6:59 P.M.). This four hour period accounted for 27.0% of all collisions. The least collision-prone time period of the day was the early morning hours.

TABLE 2.4

COLLISION OCCURRENCE BY TIME PERIODS 1984

Time Period	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Only Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
11:00 P.M. - 2:59 A.M.	66	16.5	1566	12.9	8588	10.9	10220	11.2
3:00 A.M. - 6:59 A.M.	46	11.5	720	5.9	2892	3.7	3658	4.0
7:00 A.M. - 10:59 A.M.	58	14.5	1685	13.9	13238	16.8	14981	16.4
11:00 A.M. - 2:59 P.M.	54	13.5	2574	21.2	18843	23.9	21471	23.5
3:00 P.M. - 6:59 P.M.	97	24.2	3345	27.5	21288	26.9	24730	27.0
7:00 P.M. - 10:59 P.M.	78	19.5	2126	17.5	12926	16.4	15130	16.5
Unspecified	2	0.5	134	1.1	1218	1.5	1354	1.5
TOTAL	**401**	**100.0**	**12150**	**100.0**	**78993**	**100.0**	**91544**	**100.0**

OBSERVATIONS

The afternoon rush hour period (3:00 P.M. - 6:59 P.M.) accounted for 27.0% of all collisions occurring in a 24 hour period. The least collision - prone time period was the early morning (3:00 A.M. - 6:59 A.M.).

Table 2.5

CASUALTY COLLISIONS DURING 1984 HOLIDAYS

Holidays	Number Killed		Number Injured		TOTAL* COLLISIONS	
	N	%	N	%	N	%
New Year's Day (January 1)	0	0.0	35	2.2	195	3.1
Easter (April 20 - 23)	5	10.0	149	9.5	575	9.2
Victoria Day (May 18 - 21)	3	6.0	249	15.8	744	11.9
Canada Day (July 1)	3	6.0	69	4.4	162	2.6
August Long Weekend (August 3 - 6)	10	20.0	283	18.0	821	13.1
Labour Day (August 31 - September 3)	12	24.0	268	17.0	896	14.3
Thanksgiving Day (October 5 - 8)	7	14.0	265	16.8	877	14.0
Remembrance Day (November 11)	2	4.0	32	2.0	210	3.4
Christmas Season (December 23 - 27)	8	16.0	224	14.2	1783	28.5
TOTAL	**50**	**100.0**	**1574**	**100.0**	**6263**	**100.0**

OBSERVATIONS

The holiday weekends - August, Labour Day and Thanksgiving recorded more individuals killed or injured in traffic collisions than any other holiday period. However, the Christmas season experienced the most collisions overall.

* Includes fatal, injury and property damage only collisions.

VICTIMS

ROAD USER CLASS

- The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and motorcyclists accounted for 6.0% and 4.9% of the casualties, respectively.

AGE OF CASUALTIES

- Casualty rates per population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children (under 14 years of age) and people over the age of 65.

Table 3.1

INJURIES AND FATALITIES
BY ROAD USER CLASS
1984

Road User Class	Persons Killed		Persons Injured		Total Casualties	
	N	%	N	%	N	%
Drivers	249	53.0	9965	52.0	10214	52.0
Passengers	133	28.3	6561	34.2	6694	34.1
Pedestrians	50	10.6	1123	5.9	1173	6.0
Bicyclists	5	1.1	461	2.4	466	2.4
Motorcyclists	27	5.7	932	4.9	959	4.9
Other	4	0.9	42	0.2	46	0.2
Unspecified	2	0.4	88	0.5	90	0.5
TOTAL	**470**	**100.0**	**19172**	**100.0**	**19642**	**100.0**

OBSERVATIONS

The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and motorcyclists accounted for (6.0%) and (4.9%) of the casualties, respectively.

TABLE 3.2

AGE OF CASUALTIES INVOLVED
IN CASUALTY COLLISIONS
1984

Age in Years	Persons Killed		Persons Injured		Casualty Rate Per 10,000 Population *
	N	%	N	%	
Under 5	7	1.5	515	2.7	25.2
5 - 9	6	1.3	619	3.2	35.1
10 - 14	15	3.2	839	4.4	49.1
15 - 19	72	15.3	3230	16.8	170.8
20 - 24	83	17.9	3676	19.2	151.9
25 - 29	60	12.6	2657	13.9	102.6
30 - 34	37	7.9	1854	9.7	87.1
35 - 44	42	8.9	2156	11.2	71.5
45 - 54	52	11.1	1389	7.2	68.1
55 - 64	38	8.1	1034	5.4	63.1
65 and over	58	12.3	875	4.6	52.3
Unspecified	-	-	328	1.7	
TOTAL	**470**	**100.0**	**19172**	**100.0**	

OBSERVATIONS

Casualty rates per population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children (under 14 years of age) and people over the age of 65.

* Based on postcensal estimates of the population by sex and age. Canada and Provinces, 1984. Statistics Canada.

DRIVER COMPONENT

AGE AND SEX OF DRIVERS

- Overall casualty collision rates per licensed driver indicated that 18-19 year olds were more likely to be involved in a traffic collision than any other age group. The next age group most likely to be involved in serious collisions were 16 to 17 year olds. Drivers over the age of 65 were least likely to be involved in a casualty collision.

DRIVER ACTIONS

- Driver error or misjudgement was involved in approximately 60% of casualty collisions. Running off the road and travelling at an unsafe speed were the most frequent driver actions contributing to casualty collisions.

Table 4.1

AGE AND SEX OF DRIVERS INVOLVED IN CASUALTY COLLISIONS: PER 1,000 LICENSED DRIVERS 1984

	MALES			FEMALES			TOTAL*		
Age of Driver	N	%	Per 1000** Licensed Drivers	N	%	Per 1000** Licensed Drivers	N	%	Per 1000** Licensed Drivers
Under 16	257	1.3	16.9	98	0.5	10.0	359	1.8	14.3
16 - 17	723	3.6	23.0	350	1.7	14.2	1076	5.3	19.2
18 - 19	1134	5.6	27.0	429	2.1	12.3	1572	7.8	20.5
20 - 24	3021	14.9	17.9	1179	5.8	9.0	4207	20.8	14.0
25 - 34	4250	21.0	12.9	1569	7.7	6.2	5835	28.8	10.0
35 - 44	2004	9.9	10.8	950	4.7	6.5	2964	14.6	8.9
45 - 54	1260	6.2	10.5	500	2.5	5.8	1762	8.7	8.6
55 - 64	836	4.1	9.7	320	1.6	5.5	1160	5.7	8.0
65 and over	629	3.1	9.8	190	0.9	5.8	821	4.1	8.5
Unspecified	93	0.5	---	23	0.1	---	514	2.5	---
TOTAL	**14207**	**70.2**		**5608**	**27.6**		**20270**	**100.0**	

Table 4.1 - Continued

OBSERVATIONS

Overall casualty collision rates per licensed driver indicated that 18-19 year olds were more likely to be involved in a traffic collision than any other age group. The next age group most likely to be involved in casualty crashes were 16 to 17 year olds. Drivers over the age of 55 were least likely to be involved in a casualty crash.

* Includes drivers whose sex was unspecified on the collision report form.

** Source: Alberta Solicitor General - Motor Vehicles Division. Operator Statistics, December 31, 1983

Table 4.2

ACTIONS OF DRIVERS INVOLVED IN CASUALTY COLLISIONS* 1984

DRIVER ACTION	FATAL COLLISIONS		NON-FATAL INJURY COLLISIONS		TOTAL CASUALTY COLLISIONS	
	N	%	N	%	N	%
Driving Properly	206	37.5	7984	43.7	8190	43.5
Ran Off Road	84	15.3	1426	7.8	1510	8.0
Unsafe Speed	70	12.8	1246	6.8	1316	7.0
Failing to Observe Traffic Control Device	24	4.4	1127	6.2	1151	6.1
Failing to Yield Right-of-Way	26	4.7	991	5.4	1017	5.4
Left Turn Across Path	11	2.0	915	5.0	926	4.9
Following Too Closely	3	0.5	819	4.5	822	4.4
Entering Lane When Unsafe	6	1.1	279	1.5	285	1.5
Left of Centre Lane	53	9.7	291	1.6	344	1.8
Improper Turn	6	1.1	276	1.5	282	1.5
Improper Passing	12	2.2	171	0.9	183	1.0
Backing Unsafely	0	0.0	146	0.8	146	0.8
Pedestrian Error	0	0.0	48	0.3	48	0.3
Failing to Signal	1	0.2	21	0.1	22	0.1
Other	47	8.6	2519	13.8	2566	13.6
TOTAL	**549**	**100.0**	**18259**	**100.0**	**18808**	**100.0**

OBSERVATIONS

Driver error or misjudgement was involved in 56.5% of casualty collisions. Running off the road and unsafe speed were the most frequent driver actions contributing to casualty collisions.

* Includes only those cases where driver action was specified on the collision report form.

VEHICLE COMPONENT

TYPES OF VEHICLES

- Passenger cars and pick up trucks/vans were the vehicles most frequently involved in casualty collisions. Motorcycles were involved in 4.4% of casualty collisions and trucks 4000 kg and over were involved in 3.6% of casualty collisions.

VEHICULAR FACTORS

- Vehicle defects played a very minor role in casualty collisions. Only 4% of vehicles involved in these types of collisions were identified as having a vehicle defect. The most common defects involved defective brakes and tire failure.

POINT OF IMPACT

- The most common point of impact in casualty collisions involved the front of the vehicle. Approximately 40% of the impacts involved the centre front.

Table 5.1

TYPES OF VEHICLES INVOLVED IN CASUALTY COLLISIONS * 1984

TYPE OF VEHICLE	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Passenger Car	294	48.8	12521	63.1	12815	62.6
Pick Up Truck/Van	185	30.7	4472	22.5	4657	22.8
Motorcycle	26	4.3	876	4.4	902	4.4
Truck 4000 Kg+	35	5.8	705	3.6	740	3.6
Tractor Trailer	47	7.8	422	2.1	469	2.3
Bicycle	5	0.8	482	2.4	487	2.4
School Bus	1	0.2	30	0.2	31	0.2
Other Bus	3	0.5	116	0.6	119	0.6
Off Hwy. Vehicle	3	0.5	82	0.4	85	0.4
Farm Equipment	3	0.5	19	0.1	22	0.1
Other	1	0.2	131	0.7	132	0.6
TOTAL NUMBER OF VEHICLES	**603**	**100.0**	**19856**	**100.0**	**20459**	**100.0**

OBSERVATIONS

Passenger cars and pick up trucks/vans were the vehicles most frequently involved in casualty collisions. Motorcycles were involved in 4.4% of casualty collisions and trucks 4000 kg and over were involved in 3.6% of casualty collisions.

* Includes only those cases where type of vehicle was specified on the collision report form.

Table 5.2

VEHICULAR FACTORS
INVOLVED IN CASUALTY COLLISIONS*
1984

VEHICULAR FACTORS	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
No Defect Present	438	96.3	16706	96.0	17144	96.0
Defective Brakes	4	0.9	116	0.7	120	0.7
Tire Failure/Inadequate	3	0.7	115	0.7	118	0.7
Lighting Defect	2	0.4	60	0.3	62	0.3
Other	8	1.8	410	2.4	418	2.3
TOTAL	**455**	**100.0**	**17407**	**100.0**	**17862**	**100.0**

OBSERVATIONS

Vehicle defects played a very minor role in casualty collisions. Only 4% of vehicles involved in these types of collisions were identified as having a vehicle defect. The most common defects included defective brakes and tire failure.

* Includes only those cases in which a vehicular factor was specified on the collision report form.

Table 5.3

POINT OF IMPACT ON VEHICLES INVOLVED IN CASUALTY COLLISIONS* 1984

POINT OF IMPACT	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Centre Front	248	42.2	6928	37.4	7176	37.6
Right Front	45	7.7	2066	11.2	2111	11.1
Left Front	59	10.1	2152	11.6	2211	11.6
Right Side	27	4.6	1100	5.9	1127	5.9
Left Side	30	5.1	1101	6.0	1131	5.9
Centre Rear	27	4.6	2111	11.4	2138	11.2
Right Rear	12	2.0	636	3.4	648	3.4
Left Rear	9	1.5	602	3.3	611	3.2
Top	5	0.9	61	0.3	66	0.3
Undercarriage	10	1.7	151	0.8	161	0.8
Rollover	115	19.6	1596	8.6	1711	9.0
TOTAL	**587**	**100.0**	**18504**	**100.0**	**19091**	**100.0**

OBSERVATIONS

The most common point of impact in casualty collisions involved the front of the vehicle. Approximately 40% of the impacts involved the centre front while 11.1% of the impacts involved the right front and 11.6% involved the left front.

* Includes only those cases in which point of impact was specified on the collision report form.

ENVIRONMENTAL COMPONENT

LOCATION

- The majority of fatal crashes occurred in rural areas, whereas, the majority of injury and property damage only crashes occurred in urban areas.

SURFACE CONDITION

- The majority of casualty collisions occurred when surface conditions were dry.

ROAD LOCATION

- Approximately 40.3% of casualty collisions were non-intersection related. Fatal collisions were less likely to be intersection related than non-fatal injury collisions.

Table 6.1

LOCATION OF COLLISIONS
1984

Location	Fatal Collisions		Non-Fatal Injury Collisions		Property Only Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
Urban	107	26.7	8214	67.6	64360	81.5	72681	79.4
Rural	285	71.1	3545	29.2	12884	16.3	16714	18.3
Unspecified	9	2.2	391	3.2	1749	2.2	2149	2.3
TOTAL	**401**	**100.0**	**12150**	**100.0**	**78993**	**100.0**	**91544**	**100.0**

OBSERVATIONS

Collisions which occurred in rural areas accounted for 71.1% of all fatal crashes. Collisions occurring in urban areas resulted in the highest proportion of non-fatal injury collisions (67.6%) and property damage only crashes (81.5%).

Table 6.2

CASUALTY COLLISION OCCURRENCE
BY SURFACE CONDITION
1984

Surface Condition	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Dry	242	60.3	5871	48.3	6113	48.7
Wet	32	8.0	1702	14.0	1734	13.8
Loose Material	45	11.2	743	6.1	788	6.3
Snow/Ice	69	17.2	2649	21.8	2718	21.7
Other	7	1.7	162	1.3	169	1.3
Unspecified	6	1.5	1023	8.4	1029	8.2
TOTAL	**401**	**100.0**	**12150**	**100.0**	**12551**	**100.0**

OBSERVATIONS

The majority of casualty collisions occurred when surface conditions were dry. Snow and ice were involved in 17.2% of fatal collisions and 21.8% of non-fatal injury collisions.

Table 6.3

ROAD LOCATION OF CASUALTY COLLISIONS
1984

Road Location	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Intersection-Related	91	22.7	5561	45.8	5652	45.0
Non-Intersection Related	232	57.9	4823	39.7	5055	40.3
Off Highway	35	8.7	550	4.5	585	4.7
At/Near Private Drive to Residence	23	5.7	458	3.8	481	3.8
Parking Lot	4	1.0	225	1.9	229	1.8
At/Near Commercial Entrance	4	1.0	207	1.7	211	1.7
At/Near Service Road	6	1.5	121	1.0	127	1.0
At/Near Railroad Crossing	5	1.2	82	0.7	87	0.7
Unspecified	1	0.2	123	1.0	124	1.0
TOTAL Collisions	**401**	**100.0**	**12150**	**100.0**	**12551**	**100.0**

OBSERVATIONS

Approximately 40.3% of casualty collisions were non-intersection related. Fatal collisions were less likely to be intersection related (22.7%) than non-fatal injury collisions (45.8%).

SPECIAL TYPES OF VEHICLES

MOTORCYCLES

- Fatal motorcycle collision rates based on motorcycle registrations have been decreasing steadily since 1981. The involvement rate for non-fatal injury collisions has also been decreasing.

- The majority of motorcycle collisions involved male drivers. Motorcycle drivers under the age of 25 were the age group most likely to be involved in collisions. This was especially true for 16 and 17 year old drivers.

- Compared to drivers involved in other types of vehicle collisions, motorcycle drivers were more likely to drive at an unsafe speed or pass improperly, but less likely to fail to yield right-of-way or fail to observe a traffic control device.

- Compared to drivers involved in other types of vehicle collisions, motorcycle drivers were more likely to have consumed alcohol before the crash.

- Vehicular factors were involved in 7.5% of motorcycle collisions compared to 4% of collisions involving other types of vehicles.

- The majority of motorcycle collisions occurred during the months of April to August.

- The majority of collisions involving motorcycles occurred on dry roads.

TRACTOR TRAILERS

- In 1984, there were 54 persons killed and 632 injured in collisions involving tractor trailers. This represents a 22.1% increase in casualties since 1983.

- Compared to drivers of other vehicles, tractor trailer drivers were more likely to run off the road or to be driving left of the centre lane.

- Tractor trailer drivers were less likely to consume alcohol before the crash than were drivers of other types of collision - involved vehicles.

- Vehicular factors were more likely to be present in tractor trailer collisions than in collisions involving other types of vehicles. In particular, tractor trailers were more likely to be identified as having defective brakes than other vehicle types.

- The occurrences of casualty collisions involving tractor trailers were highest in the months of November and September.

TRAINS

- In 1984, 4 people were killed and 41 people were injured in crashes in which a train was involved. The number of casualties involving trains has been decreasing since 1981.

- The majority of casualty collisions involving trains occurred in the fall and winter months from October to January.

- Approximately 40% of drivers involved in a train crash were driving properly. A large percentage of drivers either failed to observe the traffic control device or failed to yield right-of-way to the train.

Table 7.1

CASUALTY COLLISIONS INVOLVING MOTORCYCLES
1980 - 1984

	1984	1983	1982	1981	1980
Number of Motorcycles					
Fatal	26	39	43	50	40
Non-Fatal Injury	876	981	1109	1225	1182
TOTAL	**902**	**1020**	**1152**	**1275**	**1222**
Casualties *					
Number Killed	27	44	43	49	38
Number Injured	1026	1197	1320	1558	1447
TOTAL CASUALTIES	**1053**	**1241**	**1363**	**1607**	**1485**
Number of Motorcycles Involved in Serious Collisions Per 10,000 Registered Motorcycles **					
Fatal Collisions	4.4	6.6	7.2	9.0	7.6
Non-Fatal Injury Collisions	148.4	165.5	185.1	220.2	223.3

OBSERVATIONS

Fatal motorcycle collision rates based on motorcycle registrations have been decreasing steadily since 1981. The involvement rate for non-fatal injury collisions has also been decreasing in a similar fashion since 1980.

* This refers to the number of people killed and injured in collisions in which a motorcycle was involved. It does not refer to the number of motorcyclists killed and injured.

** Source: Based on vehicle registration statistics, Motor Vehicles Division, Alberta Solicitor General, June, 1984.

Table 7.2

AGE AND SEX OF MOTORCYCLE DRIVERS INVOLVED IN CASUALTY COLLISIONS 1984

Age of Driver	Male		Female		Total *		Per 1,000 Licensed Motorcyclists **
	N	%	N	%	N	%	
Under 16	30	3.5	4	10.5	34	3.7	—
16 - 17	68	7.9	4	10.5	72	7.9	57.0
18 - 19	93	10.9	2	5.3	95	10.4	29.7
20 - 24	296	34.6	9	23.7	305	33.5	11.2
25 - 34	292	34.1	13	34.2	306	33.6	4.2
35 - 44	45	5.3	5	13.2	50	5.5	2.0
45 - 54	17	2.0	1	2.6	18	2.0	1.8
55 - 64	3	0.4	0	0.0	3	0.3	0.8
65 and over	4	0.5	0	0.0	4	0.4	0.4
Unspecified	8	0.9	0	0.0	23	2.5	—
TOTAL	**856**	**100.0**	**38**	**100.0**	**910**	**100.0**	

OBSERVATIONS

The majority of motorcycle collisions involved male drivers. Motorcycle drivers under the age of 25 were the age group most likely to be involved in collisions. This was especially true for 16 and 17 year old drivers. The age group least likely to be involved in collisions were drivers over the age of 55. These age and sex comparisons are limited due to the lack of driving exposure data. That is, in order to make valid age comparisons, it is important to take into account the number of kilometres driven annually by each age and sex group.

* Includes drivers whose sex was unspecified on the collision report form.
** Source: Alberta Solicitor General - Motor Vehicles Division. Operator Statistics, December 31, 1983.

Table 7.3

CASUALTY COLLISIONS INVOLVING MOTORCYCLES: DRIVER ACTION* 1984

DRIVER ACTION	Motorcycle Collisions		Total Casualty Collisions (All Vehicle Types)
	N	%	%
Driving Properly	331	40.5	43.6
Unsafe Speed	158	19.3	7.0
Ran Off Road	72	8.8	8.0
Following Too Closely	30	3.7	4.4
Improper Passing	25	3.1	1.0
Failing to Yield Right-of-Way	24	2.9	5.4
Failing to Observe Traffic Control Device	15	1.8	6.1
Improper Turn	12	1.5	1.5
Left Turn Across Path	10	1.2	4.9
Left of Centre Lane	9	1.1	1.8
Entering Lane When Unsafe	4	0.5	1.5
Backing Unsafely	2	0.2	0.8
Pedestrian Error	1	0.1	0.3
Failing to Signal	1	0.1	0.1
Other	124	15.2	-
TOTAL	**818**	**100.0**	-

OBSERVATIONS

Improper driver actions were a contributory factor for 59.5% of the motorcyclists involved in collisions. Compared to drivers involved in other types of vehicle collisions, motorcycle drivers were more likely to drive at an unsafe speed or pass improperly. However, motorcycle drivers were less likely to fail to yield right-of-way, fail to observe a traffic control device or make an unsafe left turn across the path of an oncoming vehicle.

* Based only on cases where driver action was specified on the collision report form.

Table 7.4

CASUALTY COLLISIONS INVOLVING MOTORCYCLES: DRIVER CONDITION * 1984

DRIVER CONDITION	Motorcycle Collisions		Total Casualty Collisions (All Vehicle Types)
	N	%	%
Normal	673	81.5	85.3
Had Been Drinking	112	13.6	8.7
Alcohol Impaired	32	3.9	4.4
Other	9	1.1	-
TOTAL	**826**	**100.0**	-

OBSERVATIONS

The motorcycle driver's condition was a contributory factor for 18.6% of the crashes. However, compared to drivers involved in other types of vehicle collisions, motorcycle drivers were more likely to have consumed alcohol before the crash.

* Based only on cases where driver condition was specified on the collision report form.

Table 7.5

CASUALTY COLLISIONS INVOLVING MOTORCYCLES: VEHICULAR FACTORS* 1984

VEHICULAR FACTORS	Motorcycle Collisions		Total Casualty Collisions (All Vehicle Types)
	N	%	%
No Defect Present	718	92.5	96.0
Tire Failure/Inadequate	11	1.4	0.7
Defective Brakes	3	0.4	0.7
Lighting Defect	2	0.3	0.3
Other	42	5.4	-
TOTAL	**776**	**100.0**	-

OBSERVATIONS

Vehicular factors were involved in 7.5% of motorcycle collisions, compared to 4% in collisions involving other types of vehicles. In particular, motorcycles were twice as likely as other vehicle types to experience tire failure.

* Based only on cases where a vehicular factor was specified on the collision report form.

Table 7.6

CASUALTY COLLISIONS INVOLVING MOTORCYCLES: MONTH OF OCCURRENCE 1984

MONTH	N	%
January	1	0.1
February	14	1.6
March	25	2.9
April	87	10.0
May	101	11.6
June	157	18.0
July	161	18.5
August	163	18.7
September	95	10.9
October	63	7.2
November	4	0.5
December	1	0.1
TOTAL	**872**	**100.0**

OBSERVATIONS

The majority of motorcycle collisions occurred during the months of April to August. In particular, the months of June, July and August recorded the highest proportion of crashes involving motorcycles.

Table 7.7

CASUALTY COLLISIONS INVOLVING MOTORCYCLES: ROAD SURFACE CONDITION* 1984

ROAD SURFACE CONDITION	N	%
Dry	640	80.9
Loose Material	74	9.4
Wet	55	7.0
Snow/Ice	5	0.6
Other	17	2.1
TOTAL	**791**	**100.0**

OBSERVATIONS

The majority of collisions involving motorcycles occurred on dry roads. However, 9.4% of the collisions occurred on road surfaces covered with loose material. Wet road surfaces were involved in 7.0% of motorcycle crashes.

* Based only on collisions where road surface condition was specified on the collision report form.

Table 7.8

CASUALTY COLLISIONS INVOLVING TRACTOR TRAILERS
1980-1984

Number of Tractor Trailers	1984 N	1983 N	1982 N	1981 N	1980 N
Fatal	47	27	54	65	88
Non-Fatal Injury	422	384	454	527	581
TOTAL	**469**	**411**	**508**	**592**	**669**
Casualties *					
Number Killed	54	34	69	85	107
Number Injured	632	528	641	731	986
TOTAL CASUALTIES	**686**	**562**	**710**	**816**	**1093**
Proportion of Total Involved Vehicles					
Fatal Collisions	7.8	4.8	7.8	7.1	9.1
Non-Fatal Injury Collisions	2.1	1.8	1.8	1.9	2.1

OBSERVATIONS

In 1984, there were 54 persons killed and 632 injured in collisions involving tractor trailers. This represents a 22.1% increase in casualties from 1983. The number of tractor trailers involved in casualty collisions has increased by 14.1%. The proportional involvement of tractor trailers in fatal collisions was unusually low in 1983. However, the involvement rate rose again in 1984 to a level comparable to past years. The proportional involvement of tractor trailers in injury collisions rose slightly in 1984, but has basically remained stable over the past five years.

* This refers to the number of people killed and injured in collisions in which a tractor trailer was involved. It does not refer to the number of tractor trailer drivers killed and injured.

Table 7.9

CASUALTY COLLISIONS INVOLVING TRACTOR-TRAILERS: DRIVER ACTION* 1984

DRIVER ACTION	Tractor-Trailer Collisions		Total Casualty Collisions (All Vehicle Types)
	N	%	%
Driving Properly	232	55.0	43.6
Ran Off Road	62	14.7	8.0
Unsafe Speed	19	4.5	7.0
Failed to Observe Traffic Control Device	16	3.8	6.1
Following Too Closely	9	2.1	4.4
Left of Centre Lane	9	2.1	1.8
Failing to Yield Right-of-Way	8	1.9	5.4
Left Turn Across Path	6	1.4	4.9
Improper Turn	4	0.9	1.5
Improper Passing	3	0.7	1.0
Entering Lane When Unsafe	2	0.5	1.5
Backing Unsafely	1	0.2	0.8
Failing to Signal	1	0.2	0.1
Other	50	11.8	-
TOTAL	**422**	**100.0**	

OBSERVATIONS

Improper driver actions were exhibited by 45% of the tractor trailer drivers involved in casualty collisions. Compared to drivers of other vehicles, tractor trailer drivers were more likely to run off the road or be left of the centre lane. However, operators of tractor trailers were less likely than other vehicle operators to make an unsafe left turn, fail to yield the right-of-way, drive at an unsafe speed, or fail to observe traffic control devices.

* Based only on those cases where driver action was specified on the collision report form.

Table 7.10

CASUALTY COLLISIONS
INVOLVING TRACTOR-TRAILERS:
DRIVER CONDITION*
1984

DRIVER CONDITION	Tractor-Trailer Collisions		Total Casualty Collisions (All Vehicle Types)
	N	%	%
Normal	405	95.1	85.3
Had Been Drinking	13	3.1	8.7
Alcohol Impaired	1	0.2	4.4
Medical/Physical Defect	1	0.2	-
Other	6	1.4	-
TOTAL	**426**	**100.0**	-

OBSERVATIONS

The condition of the tractor trailer driver was a contributory factor for only 4.9% of the drivers involved. Tractor trailer drivers were less likely to consume alcohol before the crash than were drivers of other types of collision-involved vehicles.

* Based only on cases where driver condition was specified on the collision report form.

Table 7.11

CASUALTY COLLISIONS
INVOLVING TRACTOR-TRAILERS:
VEHICULAR FACTORS*
1984

VEHICULAR FACTORS	Tractor-Trailer Collisions		Total Casualty Collisions (All Vehicle Types)
	N	%	%
No Defect Present	365	92.6	96.0
Defective Brakes	7	1.8	0.7
Lighting Defect	4	1.0	0.3
Tire Failure/Inadequate	2	0.5	0.7
Other	16	4.1	-
TOTAL	**394**	**100.0**	-

OBSERVATIONS

Vehicular factors were involved in 7.4% of casualty collisions. However, vehicular factors were more likely to be present in tractor trailer collisions than in collisions involving other types of vehicles. In particular, tractor trailers were more likely to be identified as having defective brakes than other vehicle types.

* Based only on those cases where vehicular factor was specified on the collison report form.

Table 7.12

CASUALTY COLLISIONS INVOLVING TRACTOR-TRAILERS: MONTH OF OCCURRENCE 1984

MONTH	N	%
January	38	8.2
February	27	5.8
March	40	8.7
April	23	5.0
May	31	6.7
June	38	8.2
July	38	8.2
August	39	8.4
September	50	10.8
October	38	8.2
November	59	12.8
December	41	8.9
TOTAL	**462**	**100.0**

OBSERVATIONS

The occurrences of casualty collisions involving tractor trailers was highest in the months of November and September. The lowest number of tractor-trailer casualty collisions occurred during April and February.

Table 7.13

CASUALTY COLLISIONS INVOLVING TRAINS
1980-1984

Number of Trains	1984 N	1983 N	1982 N	1981 N	1980 N
Fatal	4	7	9	10	16
Non-Fatal Injury	32	30	32	50	40
TOTAL	**36**	**37**	**41**	**60**	**56**
Casualties					
Number Killed	4	9	11	16	17
Number Injured	41	43	45	111	58
TOTAL CASUALTIES	**45**	**52**	**56**	**127**	**75**
Proportion of Total Involved Vehicles					
Fatal Collisions	0.7	1.2	1.3	1.3	1.1
Non-Fatal Injury Collisions	0.2	0.1	0.1	0.2	0.2

OBSERVATIONS

The number of trains involved in casualty collisions increased from 1980 to 1981, but decreased in 1982, 1983 and 1984. The number of casualties followed a similiar pattern. The proportional involvement of trains in casualty crashes has remained relatively stable over the past 5 years.

Table 7.14

CASUALTY COLLISIONS INVOLVING TRAINS:
MONTH OF OCCURRENCE
1984

MONTH	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
January	0	0.0	6	18.8	6	16.7
February	0	0.0	1	3.1	1	2.8
March	1	25.0	0	0.0	1	2.8
April	0	0.0	2	6.3	2	5.6
May	0	0.0	1	3.1	1	2.8
June	1	25.0	3	9.4	4	11.1
July	0	0.0	0	0.0	0	0.0
August	1	25.0	3	9.4	4	11.1
September	0	0.0	3	9.4	3	8.3
October	0	0.0	4	12.5	4	11.1
November	0	0.0	4	12.5	4	11.1
December	1	25.0	5	15.6	6	16.7
TOTAL	**4**	**100.0**	**32**	**100.0**	**36**	**100.0**

OBSERVATIONS

The majority of casualty collisions involving trains occurred in the fall and winter months from October to January. The months of June and August also experienced a relatively high proportion of casualty train crashes.

Table 7.15

CASUALTY COLLISIONS INVOLVING TRAINS:
DRIVER ACTION *
1984

DRIVER ACTION	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Driving Properly	2	40.0	19	39.6	21	39.6
Failed to Observe Traffic Control Device	1	20.0	11	22.9	12	22.6
Failed to Yield Right-of-Way	2	40.0	6	12.5	8	15.1
Unsafe Speed	0	0.0	5	10.4	5	9.4
Other	0	0.0	7	14.6	7	13.2
TOTAL	**5**	**100.0**	**48**	**100.0**	**53**	**100.0**

OBSERVATIONS

Approximately 40% of drivers involved in a train crash were driving properly. A large percentage of drivers either failed to observe the traffic control device (22.6%) or failed to yield right-of-way to the train (15.1%).

* Based only on those cases where driver action was specified on the collision report form.

PEDESTRIANS

- Pedestrian casualty collisions were fairly evenly distributed across all months of the year. October and November accounted for the largest number of collisions, while February and March experienced the least number of crashes.

- Pedestrian casualty collisions were most likely to occur on Fridays and least likely to occur on Sundays.

- Pedestrian casualty collisions were most likely to occur during the evening rush-hour period.

- Drivers failed to yield the right-of-way to pedestrians in 26.6% of the collisions.

- The casualty rate per population was highest for pedestrians between the ages of 5 and 19.

Table 8.1

PEDESTRIAN CASUALTY COLLISIONS:
MONTH OF OCCURRENCE
1984

Month of Collision	N	%
January	84	7.8
February	71	6.6
March	100	9.2
April	84	7.8
May	81	7.5
June	85	7.8
July	81	7.5
August	80	7.4
September	103	9.5
October	114	10.5
November	109	10.1
December	91	8.4
TOTAL	**1083**	**100.0**

OBSERVATIONS

Pedestrian casualty collisions were fairly evenly distributed across all months of the year. October and November accounted for the largest number of collisions, while February and March experienced the least number of crashes.

Table 8.2

PEDESTRIAN CASUALTY COLLISIONS:
DAY OF OCCURRENCE
1984

DAY OF WEEK	N	%
Monday	148	13.7
Tuesday	174	16.1
Wednesday	161	14.9
Thursday	164	15.1
Friday	217	20.0
Saturday	144	13.3
Sunday	75	6.9
TOTAL	**1083**	**100.0**

OBSERVATIONS

Pedestrian casualty collisions were most likely to occur on Fridays and least likely to occur on Sundays.

Table 8.3

PEDESTRIAN CASUALTY COLLISIONS:
TIME PERIOD
1984

TIME PERIOD	N	%
11:00 P.M. - 2:59 A.M.	96	8.9
3:00 A.M. - 6:59 A.M.	34	3.1
7:00 A.M. - 10:59 A.M.	150	13.9
11:00 A.M. - 2:59 P.M.	242	22.3
3:00 P.M. - 6:59 P.M.	364	33.6
7:00 P.M. - 10:59 P.M.	189	17.5
Unspecified	8	0.7
TOTAL	**1083**	**100.0**

OBSERVATIONS

Pedestrian casualty collisions were most likely to occur during the evening rush-hour period from 3:00 P.M. to 6:59 P.M. As may be expected, these collisions were least likely to occur during the early morning hours.

Table 8.4

PEDESTRIAN CASUALTY COLLISIONS:
LOCATION
1984

LOCATION	N	%
Urban	965	89.1
Rural	87	8.0
Unspecified	31	2.9
TOTAL	**1083**	**100.0**

OBSERVATIONS

The majority of pedestrian casualty collisions (89.1%) occurred in urban areas. Only 8.0% occurred in rural areas.

Table 8.5

PEDESTRIAN CASUALTY COLLISIONS:
DRIVER ACTION *
1984

Driver Action	N	%
Driving Properly	511	56.7
Failing to Yield Right of Way	240	26.6
Backing Unsafely	44	4.9
Failing to Observe Traffic Control Device	31	3.4
Unsafe Speed	27	3.0
Improper Passing	15	1.7
Pedestrian Error/Violation	9	1.0
Ran Off Road	9	1.0
Improper Turn	6	0.7
Left of Centre Lane	4	0.4
Entered Lane When Unsafe	3	0.3
Left Turn Across Path	2	0.2
Following too Closely	1	0.1
TOTAL	**902**	**100.0**

OBSERVATIONS

Over half (56.7%) of the collisions involving pedestrians involved no improper driver actions. Drivers failed to yield the right-of-way to pedestrians in 26.6% of the collisions.

* Includes only those cases where a driver action was specified on the collision report form.

Table 8.6

AGE OF PEDESTRIAN CASUALTIES 1984

Age in Years	Number Killed	Number Injured	Total Casualties N	Total Casualties %	Casualty Rate Per 10,000 Population *
Under 5	3	69	72	6.1	3.5
5 - 9	2	141	143	12.2	8.0
10 - 14	1	131	132	11.3	7.6
15 - 19	10	139	149	12.7	7.7
20 - 24	1	134	135	11.5	5.5
25 - 29	3	89	92	7.8	3.5
30 - 34	3	57	60	5.1	2.8
35 - 44	4	96	100	8.5	3.3
45 - 54	4	76	80	6.8	4.0
55 - 64	8	77	85	7.2	5.0
65 and over	11	74	85	7.2	4.8
Unspecified	0	40	40	3.4	
TOTAL	**50**	**1123**	**1173**	**100.0**	

OBSERVATIONS

The casualty rate per population was highest for pedestrians between the ages of 5 and 19. In particular, pedestrians aged 5 to 9 had the highest casualty rate. The lowest casualty rate was recorded for persons under 5 or between the ages of 45 and 54.

* Source - Based on postcensal estimate of the population by sex and age, Canada and Provinces, 1984, Statistics Canada.

TRAFFIC SAFETY ISSUES

ALCOHOL INVOLVEMENT

- A total of 13.1% of all drivers involved in casualty collisions were judged to have consumed alcohol before the crash. As the severity of the collision increased, the involvement of alcohol dramatically increased.

- Of those drivers who had consumed alcohol and were involved in collisions, there were approximately 5 times as many male drivers as female drivers. The majority were young male drivers under the age of 30.

- Alcohol related crashes were most likely to occur during the summer months, on the weekends and during the late evening hours.

RESTRAINT USE

- Of all people injured in traffic crashes during 1984, only 14.2% were wearing seat belts at the time of the crash.

- Restraint use was highest for injured children under 5 years of age and lowest for 16 to 17 years old.

Table 9.1

CONDITION OF DRIVERS IN CASUALTY COLLISIONS*
1984

Condition of Driver	Fatal Collisions		Non-Fatal Injury Collisions		Total Drivers In Casualty Collisions	
	N	%	N	%	N	%
Normal	**346**	**69.6**	**15741**	**85.7**	**16087**	**85.3**
Had Been Drinking	98	19.7	1550	8.4	1648	8.7
Alcohol Impaired	43	8.7	785	4.3	828	4.4
TOTAL Alcohol Involvement	**141**	**28.4**	**2335**	**12.7**	**2476**	**13.1**
Other	10	2.0	297	1.6	307	1.6
TOTAL Number of Drivers	**497**	**100.0**	**18373**	**100.0**	**18870**	**100.0**

OBSERVATIONS

A total of 13.1% of all drivers involved in casualty collisions were judged to have consumed alcohol before the crash. As the severity of the collision increased, the involvement of alcohol dramatically increased. Of all drivers involved in injury collisions, 12.7% had consumed alcohol before the crash, compared to 28.4% in fatal collisions.

* Based only on cases where driver condition was specified on the collision report form.

Table 9.2

AGE AND SEX OF DRINKING DRIVERS INVOLVED IN CASUALTY COLLISIONS 1984

Age in Years	Sex of Driver					
	Male		Female		TOTAL *	
	N	%	N	%	N	%
Under 16	10	0.5	5	1.3	15	0.6
16 - 17	108	5.3	25	6.5	134	5.4
18 - 19	245	12.0	42	10.9	291	11.8
20 - 21	257	12.5	52	13.4	310	12.5
22 - 24	324	15.8	65	16.8	390	15.8
25 - 29	424	20.7	77	19.9	503	20.3
30 - 34	255	12.5	50	12.9	307	12.4
35 - 44	243	11.9	45	11.6	290	11.7
45 - 54	106	5.2	18	4.7	124	5.0
55 - 64	46	2.2	6	1.6	52	2.1
65 and over	21	1.0	0	0.0	21	0.8
Unspecified	9	0.4	2	0.5	39	1.6
TOTAL	**2048**	**100.0**	**387**	**100.0**	**2476**	**100.0**

OBSERVATIONS

Of those collision-involved drivers who had consumed alcohol, there were approximately 5 times as many male drivers as female drivers. The majority were young male drivers under the age of 30. After the age of 30, alcohol consumption sharply decreased for both male and female drivers.

* Includes drivers whose sex was unspecified on the collision report form.

Table 9.3

ALCOHOL-INVOLVED CASUALTY COLLISIONS:
MONTH OF OCCURRENCE
1984

MONTH	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
January	7	5.3	113	5.0	120	5.0
February	10	7.5	145	6.4	155	6.4
March	7	5.3	156	6.9	163	6.8
April	11	8.3	184	8.1	195	8.1
May	13	9.8	214	9.4	227	9.4
June	16	12.0	239	10.5	255	10.6
July	11	8.3	229	10.1	240	10.0
August	20	15.0	246	10.8	266	11.0
September	18	13.5	234	10.3	252	10.5
October	8	6.0	181	8.0	189	7.8
November	7	5.3	191	8.4	198	8.2
December	5	3.8	144	6.3	149	6.2
TOTAL	**133**	**100.0**	**2276**	**100.0**	**2409**	**100.0**

OBSERVATIONS

The summer months from June to August accounted for the largest proportion of alcohol-involved casualty collisions. The months of December, January and February accounted for the least proportion of alcohol-involved casualty collisions.

Table 9.4

ALCOHOL-INVOLVED CASUALTY COLLISIONS:
DAY OF WEEK
1984

DAY OF WEEK	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Monday	10	7.5	159	7.0	169	7.0
Tuesday	15	11.3	198	8.7	213	8.8
Wednesday	8	6.0	221	9.7	229	9.5
Thursday	14	10.5	265	11.6	279	11.6
Friday	20	15.0	378	16.6	398	16.5
Saturday	47	35.3	601	26.4	648	26.9
Sunday	19	14.3	454	19.9	473	19.6
TOTAL	**133**	**100.0**	**2276**	**100.0**	**2409**	**100.0**

OBSERVATIONS

As may be expected, the highest number of alcohol-involved casualty collisions occurred on the weekend. The least number of alcohol-involved casualty collisions occurred on Mondays.

Table 9.5

ALCOHOL-INVOLVED CASUALTY COLLISIONS:
TIME OF OCCURRENCE
1984

TIME PERIOD	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
11:00 P.M. - 2:59 A.M.	42	31.6	813	35.7	855	35.5
3:00 A.M. - 6:59 A.M.	22	16.5	335	14.7	357	14.8
7:00 A.M. - 10:59 A.M.	4	3.0	91	4.0	95	3.9
11:00 A.M. - 2:59 P.M.	6	4.5	101	4.4	107	4.4
3:00 P.M. - 6:59 P.M.	28	21.1	301	13.2	329	13.7
7:00 P.M. - 10:59 P.M.	31	23.3	598	26.3	629	26.1
Unspecified	0	0.0	37	1.6	37	1.5
TOTAL	**133**	**100.0**	**2276**	**100.0**	**2409**	**100.0**

OBSERVATIONS

The late evening/early morning time period was most likely to record alcohol-involved casualty collisions. The morning rush hour was the time period least likely to record alcohol-involved casualty crashes.

Table 9.6

RESTRAINT USAGE RATE BY AGE OF OCCUPANTS INJURED IN TRAFFIC COLLISIONS 1984

Age in Years	Restraint Usage Rate (%)
Under 5	26.9
5 - 9	11.9
10 - 15	11.0
16 - 17	7.3
18 - 19	9.7
20 - 21	11.4
22 - 24	12.3
25 - 29	15.4
30 - 34	17.1
35 - 44	17.7
45 - 54	16.6
55 - 64	16.4
65 and over	17.3
Overall Wearing Rate	**14.2**

OBSERVATIONS

Of all persons injured in traffic crashes during 1984, only 14.2% were wearing seat belts at the time of the crash. Restraint use was highest (26.9%) for injured children under 5 years of age and lowest for 16 to 17 year olds (7.3%). Restraint usage rates increased steadily between the ages of 20 and 44. The overall wearing rate for persons injured in collisions was 14.2%.